

Benhao Huang

🐶 huskydoge.github.io

✉ hbh001098hbh@sjtu.edu.com

🌐 <https://github.com/huskydoge>

EDUCATION

• Shanghai Jiao Tong University

Shanghai, China

Bachelor of Engineering, Electronic Information (IEEE pilot class)

Sept 2021 - Current

▶ **Overall GPA:** 92.66/100.00, 4.04/4.30, (Rank 6/129)

▶ **Selected Courses:**

📖 **Computer Science:** Design and Analysis of Algorithms (A+), Principles and methods of program design (A+), Programming Practice (A+), Computer Network (A+)

📖 **Mathematics:** Mathematical Analysis (A+), Linear and Convex Optimization (A+), Information Theory (A+), Complex Analysis (A+), Probability Statistics (A+)

▶ **Additional Academic Pursuit:** Engaged in a dual degree program in Mathematics and Applied Mathematics. Coursework includes: Complex Analysis, Abstract Algebra, Linear Algebra II

PUBLICATIONS

• Defining and Extracting Generalizable Interaction Primitives from DNNs

(📄 Under Review)

*Lu Chen, Siyu Lou, **Benhao Huang**, Quanshi Zhang*

The International Conference on Learning Representations (ICLR 2024)

EXPERIENCE

• SJTU-XAI-Lab

Shanghai, China

Undergraduate researcher, supervised by Prof. Quanshi Zhang.

Feb 2023 - Current

≡ Artificial Intelligence Interpretability

▶ **DNN Interactions Extraction Project**

- Given different DNNs trained for the same task, developed a method to extract their shared interactions.
- By conducting contrast experiments, we showed that the extracted interactions can better reflect common knowledge shared by different DNNs.
- I helped design the algorithm that balanced the generalization ability and sparsity of model interactions.

PROJECTS

• AAPMT: AGI Assessment Through Prompt and Metric Transformer.

Shanghai, China

CS3324 Digital Image Processing

Dec 2023

- Developed a interrelationship-based AGI metrics evaluation system allowing for the simultaneous evaluation of multiple AGI metrics.
- Designed and implemented "Metric Transformer", where attention mechanism is applied to calculate each of metric jointly. 🌐 [GitHub](#) 📄 [Report](#)

• TranBlend: An Experimental Fusion of Textual Input in Saliency Prediction Models

Shanghai, China

CS3324 Digital Image Processing

Dec 2023

- Developed a model to simulate the text descriptions' influence on human's attention on images reflecting by saliency maps.
- Blended image features from ViT and text features from BERT using cross-attention to enhance the performance of TransalNet. 🌐 [GitHub](#) 📄 [Report](#)

• Adaptive Huffman Coding: Analysis and Applications

Shanghai, China

ICE2601 Information Theory Course Project

May 2023

- Further enhanced the incremental Huffman strategy by adaptive Huffman coding to train Continuous Bag of Words (CBOW) model faster and better. 🌐 [GitHub](#) 📄 [Report](#) 📄 [Slides](#)

• Shanghai Jiao Tong University Classroom Information Website

Shanghai, China

ICE2604 Introduction to Software Engineering Course Project

Dec 2022

- Developed a website to help students find comfortable study spaces at SJTU.
- Used Vue2 as the frontend framework, Elasticsearch and Logstash as the search engine, ECharts for data visualization. 🌐 [GitHub](#) 📄 [Demo](#)

• SNAKE Game: Pixel

Shanghai, China

CS1605 Programming and Practice Course Project

July 2022

- Designed a SNAKE Game using C++ pdcourses.lib.
- Implemented some interesting game props such as "Rewarding Time" and "Freezing Speed" as well as AI Snake mode. 🌐 [GitHub](#) 📄 [Slides](#) 📄 [Demo](#)

HONORS AND AWARDS

- Rui Yuan-Hong Shan scholarship (Rank 3/129) *2023*
- Academic Excellence Scholarship of SJTU (top 10%) *2022, 2023*
- Shao Qiu scholarship (Rank 5/129) *2022*
- Mathematical Contest In Modeling (Meritorious Winner) *2022*

MISCELLANEOUS

- **Programming**

- Proficient: Python (PyTorch, NumPy, Manim, etc.), C/C++, \LaTeX
- Familiar: MATLAB, HTML/CSS, JavaScript, Vue, Linux, Shell , Verilog

- **Service**

- Member of the Outreach Department, SJTU Spark Program *Oct 2021 - Sept 2022*
- Member of Academic Department, SJTU Student Backbone Training Program *Feb 2023 - Sept 2023*
- Student Mentor of CS2601 Convex Optimization, SJTU *Oct 2023 - Feb 2024*
- Student Mentor of CS2612 Programming Languages and Compilers, SJTU *Oct 2023 - Feb 2024*